Claims

We claim:

1. A medical screw comprising:

a head for receiving a screw driving device; and

a shaft having a length and extending from said head, wherein said shaft includes a threaded portion and a distal guiding tip for introducing said screw into a pre-drilled implantation site.

2. The medical screw of claim 1 wherein said threaded portion of said medical screw comprises a first series of helical threads having a first diameter and a second series of helical threads interleaved with said first series of helical threads and having a second diameter, wherein said second diameter is different from said first diameter.

3. The medical screw of claim 1 wherein said distal guiding tip terminates in a point.

4. The medical screw of claim 1 wherein said distal guiding tip terminates in a beveled face.

5. The medical screw of claim 1 wherein said head is configured as one of a hexagon, square and rectangular head.

6. The medical screw of claim 1 wherein said head comprises at least one eyelet for receiving sutures.

7. The medical screw of claim 1 wherein said medical screw further comprises at least one counter-rotation channel, wherein said counter-rotation channel is configured to receive bone growth.

8. The medical screw of claim 7 wherein said medical screw further comprises at least one counter-rotation tooth, wherein said counter-rotation tooth is proximate said counter-rotation channel.

9. The medical screw of claim 1 wherein said shaft is cylindrical.

10. The medical screw of claim 1 wherein said shaft tapers from said head and terminates in a point.

11. The medical screw of claim 1 wherein said shaft comprises a cylindrical portion and a tapered portion.

12. The medical screw of claim 2 wherein at least one of said first series and said second series of helical threads tapers from said head along said shaft.

13. The medical screw of claim 2 wherein the thickness of at least one of said first series and said second series of helical threads decreases along a portion of said shaft.

14. The medical screw of claim 2 wherein said first series of helical threads has an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft, said second series of helical threads has an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft, and wherein at least one of said first angle and said second angle of said first series of helical threads is different from at least one of said first angle and said second angle of said second series of helical threads.

15. The medical screw of claim 2 wherein said first and second series of helical threads have an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft and wherein at least one of said first angle and said second angle of said first series of helical threads and said first angle and said second angle of said second series of helical threads changes along said shaft.

16. The medical screw of claim 1 wherein said threaded portion of said medical screw comprises a series of helical threads which changes in diameter along said shaft.

17. The medical screw of claim 2 wherein said first series of helical threads has a first pitch and said second series of helical threads has a second pitch and wherein at least one of said first pitch and said second pitch varies along said shaft.

18. A medical screw comprising:

a head for receiving a screw driving device; and

a shaft having a length and extending from said head, wherein said shaft includes a threaded portion and a counter-rotation channel configured to receive bone growth.

19. The medical screw of claim 18 wherein said shaft further comprises a distal guiding tip proximate to said threaded portion and configured to introduce said medical screw into a pre-drilled implantation site.

20. The medical screw of claim 18 wherein said threaded portion of said medical screw comprises a first series of helical threads having a first diameter, and a second series of helical threads interleaved with said first series of helical threads and having a second diameter wherein said second diameter is different from said first diameter.

21. The medical screw of claim 19 wherein said distal guiding tip terminates in a point.

22. The medical screw of claim 19 wherein said distal guiding tip terminates in a beveled face.

23. The medical screw of claim 18 wherein said head is configured as one of a hexagon, square and rectangular head.

24. The medical screw of claim 18 wherein said head comprises at least one eyelet for receiving sutures.

25. The medical screw of claim 18 wherein said medical screw further comprises at least one counter-rotation tooth, wherein said counter-rotation tooth is proximate said counter-rotation channel.

26. The medical screw of claim 18 wherein said shaft is cylindrical.

27. The medical screw of claim 18 wherein said shaft tapers from said head and terminates in a point.

28. The medical screw of claim 18 wherein said shaft comprises a cylindrical portion and a tapered portion.

29. The medical screw of claim 20 wherein said at least one of said first series and said second series of helical threads tapers from said head along said shaft.

30. The medical screw of claim 20 wherein the thickness of at least one of said first series and said second series of helical threads decreases along a portion of said shaft.

31. The medical screw of claim 20 wherein said first series of helical threads has an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft, said second series of helical threads has an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft, and wherein at least one of said first angle and said second angle of said first series of helical threads is different from at least one of said first angle and said second angle of said second series of helical threads

32. The medical screw of claim 20 wherein said first and second series of helical threads have an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft and wherein at least one of said first angle and said second angle of said first series of helical threads and said first angle and said second angle of said second series of helical threads changes along said shaft.

33. The medical screw of claim 18 wherein said threaded portion of said medical screw comprises a series of helical threads which changes in diameter along said shaft.

34. The medical screw of claim 20 wherein said first series of helical threads has a first pitch and said second series of helical threads has a second pitch and wherein at least one of said first pitch and said second pitch varies along said shaft.

35. A medical screw having a shaft, wherein said shaft comprises:

a threaded portion;

a distal guiding tip adjacent said threaded portion wherein said distal guiding tip is configured to introduce said screw into a pre-drilled implantation site; and

a slot for receiving a screw driving device.

36. The medical screw of claim 35 wherein said threaded portion of said medical screw comprises a first series of helical threads having a first diameter and a second series of helical threads interleaved with said first series of helical threads and having a second diameter, wherein the second diameter is different from said first diameter.

37. The medical screw of claim 35 wherein said distal guiding tip terminates in a point.

38. The medical screw of claim 35 wherein said distal guiding tip terminates in a beveled face.

39. The medical screw of claim 35 wherein said medical screw further comprises at least one counter-rotation channel, wherein said counter-rotation channel is configured to receive bone growth.

40. The medical screw of claim 35 wherein said shaft further comprises at least one eyelet for receiving sutures.

41. The medical screw of claim 39 wherein said medical screw further comprises at least one counter-rotation tooth, wherein said counter-rotation tooth is proximate said counter-rotation channel.

42. The medical screw of claim 35 wherein said shaft is cylindrical.

43. The medical screw of claim 35 wherein said shaft tapers and terminates at a point.

44. The medical screw of claim 35 wherein said shaft comprises a cylindrical portion and a tapered portion.

45. The medical screw of claim 36 wherein said shaft has a proximate end and a distal end and wherein at least one of said first series and said second series of helical threads tapers from said proximate end to adjacent said distal end of said shaft.

46. The medical screw of claim 36 wherein the thickness of at least one of said first series and said second series of helical threads decreases along a portion of said shaft.

47. The medical screw of claim 36 wherein said first series of helical threads has an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft, said second series of helical threads has an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft and wherein at least one of said first angle and said second angle of said first series of helical threads is different from at least one of said first angle and said second angle of said second series of helical thread.

48. The medical screw of claim 36 wherein said first and second series of helical threads has an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft and wherein at least one of said first angle and said second angle of said first series of helical threads and said first angle and said second angle of said second series of helical threads changes along said shaft.

49. The medical screw of claim 35 wherein said threaded portion of said medical screw comprises a series of helical threads which changes in diameter along said shaft.

50. The medical screw of claim 36 wherein said first series of helical threads has a first pitch and said second series of helical threads has a second pitch and wherein at least one of said first pitch and said second pitch varies along said shaft.

51. A medical screw having a shaft comprising:

a thread portion;

at least one counter-rotation channel configured to receive bone growth; and

a slot for receiving a screw driving device.

52. The medical screw of claim 51 wherein said threaded portion of said medical screw comprises a first series of helical threads having a first diameter, and a second series of helical threads interleaved with said first series of helical threads and having a second diameter wherein said second diameter is different from said first diameter.

53. The medical screw of claim 51 wherein said shaft further comprises at least one eyelet for receiving sutures.

54. The medical screw of claim 51 wherein said shaft further comprises at least one counter-rotation tooth, wherein said counter-rotation tooth is proximate said counter-rotation channel.

55. The medical screw of claim 51 wherein said shaft is cylindrical.

56. The medical screw of claim 51 wherein said shaft tapers and terminates at a point.

57. The medical screw of claim 51 wherein said shaft comprises a cylindrical portion and a tapered portion.

58. The medical screw of claim 52 wherein said shaft has a proximate end and a distal end and wherein at least one of said first series and said second series of helical threads tapers from said proximate end to adjacent said distal end of said shaft.

59. The medical screw of claim 52 wherein the thickness of at least one of said first series and said second series of helical threads decreases along a portion of said shaft.

60. The medical screw of claim 52 wherein said first series of helical threads has an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft, said second series of helical threads has an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft, and wherein at least one of said first angle and said second angle of said first series of helical threads is different from at least one of said first angle and said second angle of said second series of helical threads.

61. The medical screw of claim 52 wherein said first and second series of helical threads has an upper surface configured at a first angle to said shaft and an under surface configured at a second angle to said shaft and wherein at least one of said first angle and said second angle of said first series of helical threads and said first angle and said second angle of said second series of helical threads changes along said shaft.

62. The medical screw of claim 51 wherein said threaded portion of said medical screw comprises a series of helical threads which changes in diameter along said shaft.

63. The medical screw of claim 52 wherein said first series of helical threads has a first pitch and said second series of helical threads has a second pitch and wherein at least one of said first pitch and said second pitch varies along said shaft.

64. A method of installing a medical screw comprising the steps of:

providing a medical screw having a head for receiving a screw driving device and a shaft having a length and extending from said head, wherein said shaft includes (a) a distal

guiding tip for introducing said screw into a pre-dilled implantation site and (b) a threaded portion, wherein said threaded portion comprises a first series of helical threads having a first diameter and a second series of helical threads interleaved with said first series of helical threads and having a second diameter, wherein said second diameter is different from said first diameter;

drilling an implantation site into bone at a desired location; and

inserting said distal guiding tip into said implantation site and rotating said medical screw to a desired degree of installation.

65. A method of installing a medical screw comprising the steps of:

providing a medical screw having a shaft comprising a proximate end and a distal end, wherein said shaft includes (a) a threaded portion and (b) a counter-rotation channel configured to receive bone growth;

drilling an implantation site into bone at a desired location, and

inserting said distal end of said shaft into said implantation site and rotating said medical screw to a desired degree of installation.

66. A method of installing a medical screw comprising the steps of:

providing a medical screw having a shaft, wherein said shaft comprises (a) a threaded portion wherein said threaded portion comprises a first series of helical threads having a first diameter and a second series of helical threads interleaved with said first series of helical threads and having a second diameter wherein said second diameter is different from said first diameter, (b) a distal guiding tip adjacent said threaded portion wherein said distal guiding tip is configured to introduce said screw into a pre-drilled implantation site, and (c) a slot for receiving a screw driving device;

drilling an implantation site into bone at a desired location; and

inserting said distal guiding tip into said implantation site and rotating said medical screw to a desired degree of installation.